APPENDIX D – MX Online Help How-To's

This section of the online help system provides some "text-only" step-by-step instructions on how to perform various tasks. Some of the more useful ones are included in this Appendix.

Alignment How-To's

Create a three center curve

To produce a three-center curve in alignment, the following steps are required:

1. Select Create Three-Center Curve from the Special Geometry options.
2. The *Create Three Center Curve* panel is displayed and Preceding Element is highlighted.
3. Select the element to precede the three-center curve.
4. Following Element is highlighted.
5. Select the element to follow the three-center curve.
6. Arc 2 Radius is highlighted. The radius you type here also determines the radii of arc 1 and arc 3.
7. Type the arc 2 radius
8. Check either *Left* or *Right* to define the hand of arc 2.
9. Approximate XY is highlighted. These XY values indicate the approximate center of arc 2 so that the three center curve is drawn in the correct location relative to the preceding and following elements.
10. Select or type an XY position that is near to the center of arc 2.
11. The details of arcs 1 and 3, angle, length and radius are displayed. Check the details and modify them if required.
12. Select *Next* to locate arc 2 and display the *Alignment Review* panel. From this panel:
13. Select *Accept* to accept arc 2 and automatically insert arc 1 between the preceding element and arc 2.
14. Select *Accept* to accept arc 1 and automatically insert arc 3 between arc 2 and the following element.
15. Select *Accept* to accept arc 3.
16. The three center curve is completed and the *Element Alignment* panel is displayed.

17. It is possible that the solution you require when creating arc 1 or arc 3 will not be the first solution found. If this is the case:

18. Select *Modify* to go to the *Free Arc: Given Radius* panel and toggle the solution field.

19. Select *Next* > to redraw the alignment and return to the *Alignment Review* panel from where you may continue as before.

Move a point of intersection

The sequence of actions is :

1. Select the PI to be moved.

2. Select the new position.

3. If Recall CP/Radii is set to Yes. The affected portion of the alignment is deleted and redisplayed in the background color. This "ghost" representation will eventually disappear as the calculation progresses but provides a useful reference for you to see the effect of the Move PI.

4. The elements of the affected portion are then redrawn as elements in their new position. You are then asked to confirm that you wish to proceed with the edit. If so then the ghost vanishes. (This would be the end of the process if Recall CP/Radii was set to No).

5. If Recall CP/Radii is set to No. The affected portion of the alignment is deleted and redisplayed in the background color. This "ghost" representation will eventually disappear as the calculation progresses but provides a useful reference for you to see the effect of the Move PI. The elements of the affected portion are then redisplayed as elements in their new position. You are then asked to confirm that you wish to proceed with the edit. If so then the ghost vanishes.

6. A marker then appears on the PI which has been moved and a panel displayed with the original data for the curve opposite it with the radius and spiral details defined. Reanalysis uses the original data or you may adjust the radius or the spiral definitions prior to Next. The alignment is reanalyzed and displayed in the usual way for Accept/Modify/Abandon. (Note that the alignment can be in error if the move results in the curve not fitting).

7. Once the re-analysis has been accepted the marker moves to the PI prior to the Moved PI and the process described in the above paragraph is repeated for the curve opposite this. The process is then repeated again for the PI following the moved PI.

The process is the same in principle but reduced in the number of operations if the PI moved is either: Start or end point, Second PI, or Penultimate PI.

Retrieve an alignment

This procedure retrieves and re-creates an alignment from a master or geometry string where the associated GDS data has been deleted.

1. In alignment, select Horizontal design.

2. The Alignment name is highlighted on the panel.

3. Press Return to remove the highlighting

4. Then select Retrieve alignment.

5. To retrieve the master or geometry string, select from the screen, the list or type the name.

6. The alignment is displayed when it is created.

7. You may amend the design or the display parameters if required before you continue with the alignment design.

- The equivalent vertical alignment is automatically retrieved unless it is already present in the GDS. If this is the case, select Next > to overwrite the existing vertical alignment or < Back to use the existing vertical alignment as it is.

Creating And Apply Styles How-To's

Apply current styles to an existing display

The current styles shown in the Styles toolbar can be selectively applied to information already displayed.

1. On the Styles toolbar, click the Apply button.

2. On the Apply Styles menu, select those styles that you wish to apply.

3. Click Next.

4. On the Apply Styles To menu, select Models, graphic Object or graphic Element and whether you wish to apply the selected styles to One, Many or All of them.

5. If you selected One or Many, you may now select from the display.

6. To change the styles to be applied, click Back.

7. Click Finish to exit.

Create a new cross hatching fill style

1. Select Create fill style from the Tools menu on the main menu bar.

2. A further menu is displayed. Select Line Hatching.

3. On the Line Hatching menu, enter the angle of the first set of lines. This angle relates to a drawn element or the left hand side of the drawing depending on the display option chosen.

4. Enter the spacing between the first set of lines in display/drawing units.

5. Enter the angle of the second set of lines.

6. Enter the spacing between the second set of lines in display/drawing units.

7. When you have finished, select the Save As button. A standard Save File menu is displayed.
8. Type the Name that you wish to give to the saved fill style.

9. When you have saved the fill style, you may create more fill styles, open existing fill styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Line Hatching menu.

Create a new dashed line style

A dashed line consists of a solid line, a space, another solid line that may be rotated and a second space. This pattern is repeated when the line is drawn.

1. Select Create line style from the Tools menu on the main menu bar.

2. On the Line style panel, click the Dashed Line button.

3. Enter the lengths and angles of the four parts of the line style.

4. When you have finished, select the Save As button. A standard Save File panel is displayed.

5. Type the Name that you wish to give to the saved line style.

6. When you have saved the line style, you may create more line styles, open existing line styles, edit them and save them under the same or a new name or click Cancel to exit from the Line styles panel.

Create a new line hatching fill style

1. Select Create fill style from the Tools menu on the main menu bar.

2. A further menu is displayed. Select Line Hatching.

3. On the Line Hatching menu, enter the angle of the hatching. This angle relates to a drawn element or the left hand side of the drawing depending on the display option chosen.

4. Enter the spacing between the lines in display/drawing units.

5. When you have finished, select the Save As button. A standard Save File menu is displayed.

6. Type the Name that you wish to give to the saved fill style.
7. When you have saved the fill style, you may create more fill styles, open existing fill styles, edit them and save them under the same or a new name. Alternatively, click the Cancel button to exit from the Line Hatching menu.

Create a new macroline style

1. Select Create line style from the Tools menu on the main menu bar.

2. On the Line style panel, select Macro Line.

3. Type the name of an existing Macro Line, or select the '...' button. An Open File panel will be displayed. Select the file name of the required macro line.

4. You may define the length of the pattern on the drawing in drawing units or you may stretch the pattern between adjacent string points. If you choose the stretch function, you can define how often the element is drawn on the string. An interval of one draws the pattern between each pair of string points. An interval of two draws the pattern, then leaves a gap. An interval of three draws the pattern and leaves two gaps, and so on.

5. You may define the width of the pattern in model or drawing units. Use the origin length-to-width ratio or calculate the width from a string dimension such as a elevation. If you choose the fixed width option, choose the units and enter a width in those units. If you choose the variable width option, enter the dimension number and the scale to be applied to the width.

6. When you have finished, select the Save As button. A standard Save File menu is displayed.

7. Type the Name that you wish to give to the saved line style.

8. When you have saved the line style, you may create more line styles, open existing line styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Line styles panel.

Create a new symbol fill style, random position and fixed angles

1. Select Create Fill Style from the Tools menu on the main menu bar.

2. A further menu is displayed. Select Symbol Fill, Random Position, Fixed Angle.

3. On the Symbol Fill, Random Position, Fixed Angle menu, choose the required symbol using the Open button. An Open File menu is displayed. Select the file name of the required symbol.

4. Enter the angle of the hatching. This angle relates to a drawn element or the left hand side of the drawing depending on the display option chosen.

5. Enter the height and width of the symbol in display/drawing units

6. Enter the angle of the symbol. This angle relates to a drawn element or the left hand side of the drawing depending on the display option chosen.

7. When you have finished, select the Save As button. A standard Save File menu is displayed.

8. Type the Name that you wish to give to the saved fill style.

9. When you have saved the fill style, you may create more fill styles, open existing fill styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Symbol Fill menu.

Create a new symbol fill style, random position and random angles

1. Select Create Fill Style from the Tools menu on the main menu bar.

2. A further menu is displayed. Select Symbol Fill, Random Position, Random Angle.

3. On the Symbol Fill, Random Position, Random Angle menu, choose the required symbol using the Open button. An Open File menu is displayed. Select the file name of the required symbol.

4. Enter the angle of the hatching. This angle relates to a drawn element or the left hand side of the drawing depending on the display option chosen.

5. Enter the height and width of the symbol in display/drawing units.

6. When you finish select the Save As button. A standard Save File menu is displayed.

7. Type the Name that you wish to give to the saved fill style.

8. When you have saved the fill style, you may create more fill styles, open existing fill styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Symbol Fill menu.

Create a new symbol fill style, with fixed spacing and angles

1. Select Create fill style from the Tools menu on the main menu bar.

2. A further menu is displayed. Select Symbol fill, Fixed Spacing and Angle.

3. On the Symbol Fill, Fixed Spacing and Angle menu, select the required symbol using the Open button. An Open File menu is displayed. Select the file name of the required symbol.

4. Enter the angle of the hatching. This angle relates to a drawn element or the left hand side of the drawing depending on the display option chosen.

5. Enter the height and width of the symbol in display/drawing units.

6. The symbols are positioned at the points of intersection of two sets of parallel lines. Enter the angle of the first set of lines. This angle relates to a drawn element or the left hand side of the drawing depending on the display option chosen.

7. Enter the spacing between the first set of lines in display/drawing units.

8. Enter the angle of the second set of lines.

9. Enter the spacing between the second set of lines in display/drawing units.

10. When you have finished, select the Save As button. A standard Save File menu is displayed.

11. Type the Name that you wish to give to the saved fill style.

12. When you have saved the fill style, you may create more fill styles, open existing fill styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Symbol Fill menu.

Create a new text style

1. Select Create Text Style from the Tools menu on the main menu bar.

2. On the Text Style tab, select a font and font style from those listed. The fonts listed include:

    - True Type fonts (*.ttf) stored in the c:\<windows>\fonts folder
    - previously saved text styles (*.cts) stored in the …\mfw\us_styles folder
    - MX software fonts (font?.fil) stored in the …\mfw\us_sys folder

3. Set the character size measurement to be either Points or Drawing Units from the list, then
    - type the character size in points
    - type the character size in drawing units, or use the spinners.

4. On the Option (1) tab, type the factor of the character size to be used to calculate the width, or in the case of characters measured in Points select either;.Normal, Expanded or Condensed and type the factor by which the font is to be expanded or condensed.

5. Type the factor of the character size to be used to calculate the character spacing.

6. Type the factor of the character size to be used to calculate the line spacing.

7. Change the number format as required.

8. On the Options (2) tab, select a prefix / suffix, or change the case as required.

9. On the Font tab, select the name of the font to be used for the text style from the list.
   For a hardware font, this is `fon' followed by a character in the range 1 to 9, A to Z.
   For a software font, this is `sof' followed by a character in the range 1 to 9, A to Z.

10. When you have finished, select the Save As button. A standard Save File menu is displayed.

11. Type the name that you wish to give to the saved text style.

12. When you have saved the text style, you may create more text styles, open existing text styles, edit them and save them under the same or a new name. Alternatively, click Cancel to dismiss the Text Style panel.

Delete a fill style

A fill style is saved as a .cfs file. You may use the standard system utilities to delete these files.

Delete a line style

A line style is saved as a .cls file. You may use the standard system utilities to delete these files.

Delete a text style

A text style is saved as a .cts file. You may use the standard system utilities to delete these files.

Edit an existing fill style

1. Select Create Fill Style from the Tools menu on the main menu bar.

2. On the Fill style menu, select the Open button. An Open File menu is displayed. Select the file name of the required fill style. The parameters defining the fill style will be displayed in the menu.

3. Make the required changes.

4. When you have finished, select the Save button to save the fill style with its existing name.

5. Alternatively, select the Save As button to give the fill style a new name. A standard Save File menu is displayed. Type the Name that you wish to give to the saved fill style.

6. When you have saved the fill style, you may create more fill styles, open existing fill styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Fill Styles menu.

Edit an existing line style

1. Select Create line style from the Tools menu on the main menu bar.

2. On the Line style menu, select the Open button. An open file menu is displayed. Select the file name of the required line style. The parameters defining the line style will be displayed in the menu.

3. Make the required changes.

4. When you have finished, select the Save button to save the line style with its existing name.

5. Alternatively, select the Save As button to give the line style a new name. A standard Save File menu will be displayed, type the Name that you wish to give to the saved line style.

6. When you have saved the line style, you may create more line styles, open existing line styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Line styles panel.

Edit an existing text style

1. Select Create Text Style from the Tools menu on the main menu bar.

2. On the Text Style panel, select the Open button. An open file menu is displayed. Select the file name of the required text style. The parameters defining the text style are displayed on the panel.

3. Make the required changes.

4. When you have finished, select the Save button to save the text style with its existing name.

5. Alternatively, select the Save As button to give the text style a new name. A standard Save File menu will be displayed, type the Name that you wish to give to the saved text style.

6. When you have saved the text style, you may create more text styles, open existing text styles, edit them and save them under the same or a new name. Alternatively, click Cancel to exit from the Text Style panel.

Set the current curve fitting style

1. On the Styles toolbar, select Custom line style from the style type field.

2. Click the Curve Fitting button.

3. On the Curve Fitting menu, select the type of curve fitting required.

4. Type a tolerance if you are using MX curve fitting.

5. Click the OK button.

- If curve fitting is selected the button will remain depressed until selected again.

Set the current fill color

Choose a fill color to be used from now on for all subsequent lines and symbols forming fill patterns from the list of 256 standard colors.

1. On the Styles toolbar, select Custom fill style from the style type field.
2. Click the Fill Color button.
3. A menu of the available colors will appear, select the required color.
4. Click the OK button.

Set the current fill pattern

Choose a fill pattern to be used from now on.

1. On the Styles toolbar, select Custom fill style from the style type field.
2. Click the Open button next to the Fill Style field to list the available fill styles.
3. Select the required fill style.
4. Click the OK button.

- Fill patterns are held in .cfs files.

Set the current line color

1. On the Styles toolbar, select Custom line style from the style type field.
2. Select the line color button on the Styles toolbar.
3. A menu of the available colors will appear. Select the required color.
4. Click OK.

Set the current line style

1. On the Styles toolbar, select Custom line style from the style type field.
2. Select a line style to be used by clicking the Open button next to the Line Style field on the Styles toolbar to list the available line styles.
3. Select the required line style.

4. Click OK.

Set the current line width

1. On the Styles toolbar, select Custom line style from the style type field.

2. Enter a value for the line width to be used on the styles toolbar. This will be used for all subsequent lines.

Set the current text color

1. Choose a text color to be used for all subsequent annotation text from the list of 256 standard colors.

2. On the Styles toolbar, select Custom text style from the style type field.

3. Click the Text Color button.

4. A menu of the available colors will appear. Select the required color.

5. Click the OK button.

Set the current text line width

1. On the Styles toolbar, select Custom text style from the style type field.

2. On the Styles toolbar, type or select a value for the line width to be used for all subsequent annotation text.

Set the current text style

Choose a text style to be used from now on for all subsequent annotation text.

1. On the Styles toolbar, select Custom text style from the style type field.

2. Click the Open button next to the Text Style field to list the available text styles.

3. Select the required text style.

4. Click the OK button.

Displaying / Drawing How-To's

Annotate null /zero elevations on a string

1. On the Plan Display toolbar, click the Null/Zero Elevations button
   or:
   select Annotate Null/Zero Elevations from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed.

5. On the Null / Zero Elevations tab, select the Display functions required for points and string links with Null or Zero elevations.

6. On the Symbols tab, if you are using symbols to define null or zero elevations select the Colors to be used and type a Size for the symbols.

7. On the String Links tab, select the Line Color to be used to display links with null or zero elevations at their ends.

8. If Display All Remaining String Links was chosen on the Null/Zero tab, these links are displayed using the current line style and color and line width.

9. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Annotate pips at string points

1. On the Plan Display toolbar, click the Pips button
   or:
   select Pips at String Points from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. Select the Pips tab and give a pip length. For a geometry string you may choose the type of geometry string point to be annotated with a pip from the list.

6. To display part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

7. To change the orientation of the pip, click the Orientation button.

8. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Create a plan working display of an existing model

A plan working display requires the following information:

- The name of the model and the part of the model to be drawn, defined by a boundary string or a world coordinate box.
- A plan style set to select the strings to be drawn and define how they are to be interpreted with line styles, annotation, colors, curve fitting etc.

1. From the Display menu, select Plan with Styleset

2. Give the name of the model to be displayed

3. Give the style set to be used for the interpretation of the model. The list of style sets will show only those style sets that are appropriate to the type of model that you intend to display (the types are String, Triangulation and Drainage).

4. Give a nominal scale to size the interpretation of annotation text, symbols, line styles etc..

5. If you wish to draw selected strings, give the string name or mask.

6. You may use the Restrict Area button to define a rectangular boundary or a boundary string enclosing the area of the model to be displayed. Otherwise, the whole model is displayed.

7. You may use the Grid button to superimpose one or more grids on the displayed data.

This procedure can be used repeatedly to superimpose a series of models on the display, each with its own drawing style set.

When you finish, click OK to create the working display on the screen.

Display a grid

1. On the Plan Display toolbar, click the Grid button
   or:
   select Grids from the Plan With Tools menu.

2. Select a Grid Type.

3. Type the Horizontal and Vertical intervals of the grid.

4. If you choose a grid type that uses a symbol at the grid points of intersection, you should also select the required symbol and define its Height and Width.

5. If you wish to define further grids to be superimposed on the first enter a new Grid Number and follow steps 2 to 4 until you have defined as many as you need.

6. When you finish choose the OK button to exit from the Grid menu.

Display annotation along a string

1. On the Plan Display toolbar, click the Annotation Along a String button
or:
select Annotation along a String from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model is displayed.

5. On the Annotation tab, select the item to be used to Annotate Along String from the list.

6. If required, enter text to precede and follow the selected item.

7. If the chosen string is a geometry string, select the type of point to be annotated from the list.

8. The annotation text can be orientated relative to the string using the Orientation button.

9. To annotate part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

10. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display annotation at string points

1. On the Plan Display toolbar, click the Annotation at String Points button
or:
select Annotation at String Points from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. On the Annotation tab, select the item to be used to Annotate String Points from the list.

6. If required, enter text to precede and follow the numerical value.

7. If the chosen string is a geometry string select the type of point to be annotated from the list.

8. The annotation text can be orientated relative to the string using the Orientation button.

9. To display a symbol at each string point, select the Symbol tab. Select Annotate String Points with a Symbol.

10. Select the Symbol using the Open dialog, then select the units defining the size of the symbol and type a Width and Height.

11. Select the Units defining the height of the symbol and type a Height.

12. Angle tab (check).

13. The symbol may be rotated relative to the direction of the string at the point where the symbol is displayed or relative to the left hand side of the display.

14. Select the required Reference Position and type an Angle, the symbol is rotated clockwise.

15. To annotate part of a string select the Start and End tab and select or type the Start Point and End Point on the string.

16. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display area fill between strings

1. On the Plan Display toolbar, click the Area Fill Between Two Strings button
or:
select Area Fill Between Strings from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Check the Enclose Area Fill box to display a line surrounding the area fill pattern.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. On the String 1 tab, select or type a String Name for the first string, then select or type the Start Point and End Point on the string.

6. On the String 2 tab, select or type a String Name for the second string, then select or type the Start Point and End Point on the string.

7. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display area fill inside a string

1. On the Plan Display toolbar, click the Area Fill Within a String button
   or:
   select Area Fill Inside a Boundary from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. Check the Display String box to display the string as well as the area fill.

6. On the Fill tab, select the Area Fill Orientation.

7. On the Annotation tab, if you wish to display the string subreference within the area fill, check the Annotate with String Subreference box.

8. Type the Angle to be used to rotate the subreference annotation. This can be relative to the first link in the string or relative to the left hand side of the display.

9. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display cadastral strings and symbols

1. On the Plan Display toolbar, click the Cadastre Strings button
   or:
   select Cadastral Symbols at String Points from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name (this must be a cadastre string).

4. Select the Cadastre Symbol Table to be used to interpret the feature codes.

5. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

6. On the Symbols and Strings tab, if you wish to display the cadastral symbols, check the box and select the full or partial name of the feature codes in the cadastre string to be displayed as symbols.

7. If you wish to display the lines joining adjacent points in the current line style, check the box.

8. On the Annotation tab, select Display Cadastre Annotation to annotate selected points with the contents of the cadastre string. Select the full or partial name of the feature codes in the cadastre string to be displayed as symbols. Select the item to be used as annotation from the list (survey point number, cadastral point reference or feature name).

9. Type text to Precede and Follow the annotation item selected above.

10. The annotation can be orientated relative to the string using the Orientation button.

11. Select the Start and End tab to annotate part of a string, then select or type the Start Point and End Point on the string.

12. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display station annotation

1. On the Plan Display toolbar, click the Stations button
or:
select Station Annotation from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. To define how the stations are to be annotated, select the Stations tab.

6. Select Stations on One or Both Sides of the point.
7. Type the Station Interval for annotation. The points on the master alignment string must be multiples of this value.

8. Type the required Pip Length.

9. To change the orientation and position of the station value, click the Orientation button.

10. To display part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

11. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display contour strings

1. On the Plan Display toolbar, click the Contour Strings button
or:
select Contour Strings from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a Contour Name to display one string or enter a mask to display all contour strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model is displayed.

5. Select or type a String Name.

6. Select the Elevations tab and choose the required style of the annotation from the Annotate Elevations At list. Depending on the option chosen you should enter the appropriate distances or coordinates.

7. To display the string name at the start or both ends of the string, and display direction arrows at the start and end of the string, select the Identification tab and check the appropriate boxes.

8. To display part of a string select the Start and End tab and select or type the Start Point and End Point on the string.

9. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display cross slope annotation

1. On the Plan Display toolbar, click the Cross Slope button
   or:
   select Cross Slope Annotation from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type the String Name of the reference string.

4. Select or type the String Names of the two strings either side of the reference string used to calculate the cross slope.

5. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

6. Select the cross slope tab to define where cross slope symbols are to be displayed. If Display Cross Slope at Interval along Reference String is chosen, select whether the interval will be a Station Interval or a Number of Points and enter the Interval. If you give a station interval, the points on the master alignment string must be positioned at a multiple of this value.

7. To annotate part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

8. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display earthworks strings with annotation

1. On the Plan Display toolbar, click the Earthwork Strings button
   or:
   select Earthwork Strings with Annotation from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Select Display with Slope Annotation to display the standard earthwork ('tadpole') symbol in addition to the earthwork string.

5. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model is displayed.

6. To display the string name at the start or both ends of the string, and display direction arrows at the start and end of the string, select the Identification tab and check the appropriate boxes.

7. To display part of a string select the Start and End tab and select or type the Start Point and End Point on the string

8. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display inlets

1. On the Plan Display toolbar, click the Inlets button
   or:
   select Inlets from the Plan With Tools menu.

2. On the Details tab, select or type a Drainage Model Name.

3. On the Inlets tab, check the Display Inlets box to display a inlet symbol and select the symbol to be used.

4. On the Annotation tab, check the Inlet Annotation box to add annotation to the inlets. Select the item to be used as annotation. You may also define text to precede and follow the chosen item.

5. The annotation text can be orientated relative to the string using the Orientation button.

6. To annotate part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

7. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display manholes

1. On the Plan Display toolbar, click the Manholes button
   or:
   select Manholes from the Plan With Tools menu.

2. On the Details tab, select or type a Drainage Model Name.

3. On the Manholes tab, check the Display Manholes box to display a manhole symbol and select the symbol to be used.

4. On the Annotation tab, check the Manhole Annotation box to add annotation to the manholes. Select the item to be used as annotation. You may also define text to precede and follow the chosen item.

5. On the Manholes tab, check the Display Manholes box to display a manhole symbol and select the symbol to be used.

6. On the Annotation tab, check the Manhole Annotation box to add annotation to the manholes. Select the item to be used as annotation. You may also define text to precede and follow the chosen item.

7. The annotation text can be orientated relative to the string using the Orientation button.

8. To annotate part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

9. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display master alignment strings

1. On the Plan Display toolbar, click the Master Alignment Strings button
   or:
   select Master Alignment Strings from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model is displayed.

5. A master alignment string may be annotated with a pip at each point and the station of the point. To do this, select the Annotation tab, check the Display Master Alignment Annotation box and give a pip length and station interval. The points at the required station interval must exist on the master alignment string.

6. To display the string name at the start or both ends of the string, and display direction arrows at the start and end of the string, select the Identification tab and check the appropriate boxes.

7. To display part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

8. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display pipes

1. On the Plan Display toolbar, click the Pipes button
or:
select Pipes from the Plan With Tools menu.

2. On the Details tab, select or type a Drainage Model Name.

3. On the Pipes tab, check the Display Pipes box to display the pipe using the current line style. Select or type a Pipe Name to display one pipe or enter a mask to display all pipes satisfying the mask. Check the required boxes.

4. On the Annotation tab, check the Pipe Annotation box to add annotation to the pipes. Select the item to be used as annotation. You may also define text to precede and follow the chosen item.

5. The annotation text can be orientated relative to the string using the Orientation button.

6. To annotate part of a pipe string, select the Start and End tab and select or type the Start Point and End Point on the string.

7. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display point strings

1. On the Plan Display toolbar, click the Point Strings button
or:
select Point Strings with Annotation from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Select Display with Standard Point Annotation to display the points according to the string label.

- If the string is a survey station string with the name PSS, a triangle symbol is displayed at the point and annotated with the name of the survey station and the elevation.

- If the string name begins with Pxx, where xx are alphabetic characters, the string points are displayed and annotated with the letters xx.
- If the string label is Pnnn, where nnn are numeric characters, the string points are displayed and annotated with the string name and the elevation.
- To display the lines between the points, select Display as String Links.

5. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model is displayed.

6. To display the string name at the start or both ends of the string, and display direction arrows at the start and end of the string, select the Identification tab and check the appropriate boxes.

7. To display part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

8. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display scaled symbols at string points

1. On the Plan Display toolbar, click the Scaled Symbols button
   or:
   select Scaled Symbols at String Points from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. On the Symbol tab, select the symbol using the Open dialog.

6. If the chosen string is a geometry string, select the type of point to be annotated with the symbol from the list.

7. On the Scale tab, select the Dimension to be used to determine the size of the symbol and the scale to be used (generally the same as the final drawing scale).

8. If you wish to rotate the symbol about the string point, select the Angle tab. The symbol may be rotated relative to the direction of the string at the point where the symbol is displayed or relative to the left hand side of the display. Select the required Reference Position and type an Angle (the symbol is rotated clockwise).

9. To annotate part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

10. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display spot elevations at string points

1. On the Plan Display toolbar, click the Spot Elevations button
   or:
   select Spot Elevations at String Points from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. To choose the type of annotation, select the Spot Elevations tab. You can annotate each point with a cross and the elevation of the point, or the elevation can be displayed with its decimal point at the actual X,Y location of the point. For a geometry string you may select the geometry point type to be annotated from a list.

6. To display part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

7. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display strings in current style

1. On the Plan Display toolbar, click the Strings in Current Style button
   or:
   select Strings in Current Style from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. If the string selected is a geometry string, select the geometry point type. Lines will be displayed between these points only.

5. Click the Restrict Area button to define the area of the model to be displayed. Otherwise, the entire model is displayed.

6. Select or type a String Name.

7. To display the string name at the start or both ends of the string, and display direction arrows at the start and end of the string, select the Identification tab and check the appropriate boxes.

8. To display part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

9. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display symbols at string points

1. On the Plan Display toolbar, click the Symbols button
   or:
   select Symbols at String Points from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. On the Symbol tab, select the symbol using the Open dialog.

6. If the chosen string is a geometry string, select the type of point to be annotated with the symbol from the list.

7. On the Dimensions tab, select the Units defining the width of the symbol and type a Width and a Height.

8. If you wish to rotate the symbol about the string point, select the Angle tab. The symbol may be rotated relative to the direction of the string at the point where the symbol is displayed, or relative to the left hand side of the display. Select the required Reference Position and type an Angle (the symbol is rotated clockwise).

9. To annotate part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

10. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display text strings

1. On the Plan Display toolbar, click the Text Strings button
   or:
   select Text Strings from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. To display the string name at the start or both ends of the string, and display direction arrows at the start and end of the string, select the Identification tab and check the appropriate boxes.

6. Select the Text tab. The character height and bearing held in the string are shown on the menu. To override these values, type a new Character Height or Bearing and click the Reset button.

7. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display triangulation models

1. On the Plan Display toolbar, click the Triangle button
or:
select Triangulation Model from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

4. Select or type a Triangulation String Name.

5. You may select a Triangle Group. Triangle groups are assigned in the Drainage and Visualize options. Only the selected group(s) are displayed.

6. Check the Display Triangulation String box to display the triangles in addition to the annotation or fill. The current line style, line width and color are used.

7. On the Annotation tab, select the Triangulation Annotation options required. Annotation is displayed using the current text style, text line width and text color.

8. On the Fill tab, you may fill selected triangles with the current fill style and color.

9. Check the Select By Elevation box to fill all triangles lying between a Start and End Elevation.

10. Check the Select By Slope box to fill all triangles lying between a Start and End Slope.

11. Check the Select By Bearing box to fill all triangles lying between a Start and End Bearing.

12. If more than one of these three option is selected only triangles satisfying all of the selected conditions will be displayed.

13. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Display vertical point of intersection annotation in plan

1. On the Plan Display toolbar, click the Vertical Point of Intersection button
or:
select Vertical Point of Intersection Annotation from the Plan With Tools menu.

2. On the Details tab, select or type a Model Name.

3. Select or type a Geometry String Name to display one string or enter a mask to display all strings satisfying the mask.

4. Click the Restrict Area button to define an area of the model to be displayed. Otherwise, the entire model will be displayed.

5. To define the components of the vertical point of intersection symbol, select the Symbol tab followed by one of the radio buttons. Your selection will be displayed in the Preview box. Give the height of the symbol and the distance that the symbols will be offset from the point on the geometry string.

6. To show grades on either side of the symbol as text, select the Grade tab and check the grade annotation box. If required, enter some text to precede and follow the numerical value. Select the units to be used for grade.

7. To show the distances between adjacent points of intersection on either side of the symbol as text, select the Distance tab and check the Partial distance annotation box. If required, enter some text to precede and follow the numerical value.

8. To display part of a string, select the Start and End tab and select or type the Start Point and End Point on the string.

9. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Edit a saved page setup

You may wish to modify a saved page set-up.

1. Select the Page Setup from the Draw menu.

2. Select the Open Setup button. An open file menu is displayed. Select the file name of the required set-up.

3. Make any alterations to the information that is displayed on the page size, margin, grid and frame tabs

4. You should now select the Save Setup button to save the new set-up. A Save File menu is displayed.

5. Type the Name that you wish to give to the saved page set-up.

When you finish, click OK to save the set-up.

Edit a set of layout pages

Once a series of pages have been placed, you may edit their positions and details.

1. Select the page to be edited from the display or from the list on the Plan Page Layout menu.

2. Click Edit Page from the plan page layout menu. The Edit Page panel is displayed.

3. If you wish to use a different page set-up or scale for the page, select the Page Details Tab followed by the required page set-up and the scale of the drawings.

4. To move the page to a new origin, select the Point Details Tab. Type or select from the display the new location of the origin of the drawing page. Frames defining the page size and the margins inside the page at the chosen scale are drawn on the display.

5. To place the page adjacent to an existing page, select the Position Relative Tab. Select the existing page from the display or type its number (you may optionally give an overlap in drawing units). Pick an arrow button indicating where you want the page to be placed.

6. If you wish to rotate the frame, select the Bearing Details Tab to define an absolute bearing.

When you are satisfied with the new position of the page, click OK.

Open a stored set of layout pages

If you have previously stored a page layout you can open the layout if you wish to change it. You must save it before it can be used.

1. From the Plan Page Layout menu, select Open Layout.
   An Open File menu is displayed.

2. Select the required page layout file.
   The set of pages is displayed.

You may now use any of the page adding, editing or reorder functions.

Orientate text and pips

1. On the Offset tab, select whether the annotation will be displayed to the Left or Right of the point.

2. Type the Offset from the point to the start of the annotation, and select the direction of the offset relative to the direction of the string. Note that for annotation to the left of a point the number will need to take account of the length of the annotation. Select whether the offset is defined in drawing or model units.

3. On the Angle tab, select whether the annotation will be rotated relative to the direction of the string at the given point or relative to the Left Hand Side of the display.

4. Enter the Angle of rotation. Angles are measured clockwise and a value of zero will position the annotation at right angles to the string at the chosen point.

5. On the text tab you may define how text will be displayed relative to a point. Select whether the Bottom of the text or the Center of the text will be aligned with the string point.

6. To accommodate several lines of annotation text, each item of annotation can be displaced vertically, either above or below the initial position. Select the required position.

7. The Preview box will confirm the choice you have made.

8. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Orientate text and pips for geometry strings

1. On the Offset tab, select whether the annotation will be displayed to the Left or Right of the curve, or on the Inside or Outside of Curves.

2. Type the Primary Offset from the point to the start of the annotation, then select the direction of the offset relative to the direction of the string. Note that for annotation to the left of a point this number will need to take account of the length of the annotation.

3. When annotation is to be placed on the inside or the outside of curves, two alternatives are provided.

4. If a primary offset is given and no secondary Offset, text on the left hand side of a curve is right justified and text on the right hand side of a curve is left justified.

5. If a Secondary Offset is given, the Primary Offset controls the position of the annotation to the left of the curve and the Secondary Offset defines the position to the right of the curve, and text on both sides is left justified to the offset point.

6. On the Angle tab, select whether the annotation is rotated relative to the direction of the string at the given point or relative to the Left Hand Side of the display.

7. Enter the Angle of rotation. Angles are measured clockwise and a value of zero will position the annotation at right angles to the string at the chosen point.

8. On the Text tab, you may define how text will be displayed relative to a point. Select whether the Bottom of the text or the Center of the text will be aligned with string point.

9. To accommodate several lines of annotation text, each item of annotation can be displaced vertically, either above or below the initial position. Select the required position.

10. The Preview box will confirm the choice you have made.

11. When you finish, select Apply to carry out the function and retain the menu for further use or select OK to carry out the function and dismiss the menu.

Place pages with Autopage

1. Select Draw, then select the Plan Page Layout option from the menu.

2. Select the Autopage button. The Autopage panel is displayed.

3. Select the Page Details Tab.

4. Select the required page set-up and give the scale of the drawings and the required overlap in drawing units.

5. Select the Bottom Left Tab.

6. You may define the first page in the set by typing or selecting from the display the location of the bottom left of the drawing area, ie, the area on the page which is inside the margins. A frame defining the page size at the chosen scale and the margins inside the page is drawn on the screen.

7. Select the Bearing Details Tab if you wish to rotate the first drawing page, and give the bearing of the left hand side of the page.

8. When you are satisfied with the position of the initial page, click OK.

All the drawing frames required to cover the working display are displayed, together with their margins.

Place pages with Auto String

1. Select Draw, then select the Plan Page Layout option from the menu.

2. Select the Auto String button. The Auto String panel is displayed.

3. Select the model and the master string along which you wish to lay out your pages.

4. Select the Page Details Tab.

5. Select the required page set-up and give the scale of the drawings and the required overlap in drawing units. The first page is displayed at the start of the master string. Adjust the scale as required.

6. When you are satisfied with the size of the initial page, click OK to add the remaining pages along the master string.

Place pages with Add page

1. Select Draw, then select the Plan Page Layout option from the menu. The plan page layout menu is displayed.

2. Select the Add Page button. The Add page panel is displayed.

3. Select the Page Details Tab.

4. Select the required page set-up and give the scale of the drawings.

5. Select the Bottom Left Tab.

6. You may define the first page in the set by typing or selecting from the display the location of the bottom left of the drawing area, ie, the area on the page which is inside the margins. A frame defining the page size at the chosen scale and the margins inside the page is drawn on the screen.

7. Select the bearing details Tab if you wish to rotate the first drawing page, and give the bearing of the left hand side of the page.

8. When you are satisfied with the position of the initial page, and you only wish to place one page, click Done. Otherwise click Next Page to place more pages.

Place pages with Next page

Once you have placed the first page in a page layout, you may position the subsequent pages in a number of ways. You may specify a point on the display at which the left hand corner of a page is to be placed, or position the page adjacent to an existing page. A further refinement allows you to overlap drawing areas so that the model information may appear in more than one drawing.

1. Select the Next Page button. The Next page panel is displayed.

2. If you wish to use a different page set-up or scale for this page, select the Page Details Tab then select the required page set-up and give the scale of the page.

3. To place the page by giving its origin, select the Bottom Left Tab. Type or select from the display the location of the bottom left hand corner of the page. Frames defining the page size and the margins inside the page at the chosen scale are drawn on the display.

4. To place the page adjacent to an existing page, select the Position Relative Tab. Select the existing page from the display or type its number (you may optionally give an overlap in drawing units). Pick an arrow button indicating where you want the page to be placed relative to the existing page.

5. If you wish to rotate the frame, select the Bearing Details Tab to define an absolute bearing for the left hand side of the page.

6. When you are satisfied with the position of this page, click Next Page to place another page or click Done if you have placed all of your pages.

7. Clicking Done returns you to the plan page layout menu where the details of all of the pages you have placed are listed.

Reorder a set of layout pages

A set of layout pages is drawn in the sequence that the pages appear in the list on the Plan Page Layout menu. You may reorder this list.

1. On the Plan Page Layout menu, highlight the page that you wish to move in the list.

2. Pick the Up arrow or Down arrow button to move the page in the list.

Reset a page setup to the default settings

Once you have defined a page set-up you may wish to return all of the tabbed menu panels to the installation default values.

Select the Default button on the Page set-up.

Restrict the area of the model to be displayed or drawn

When producing a working display or a set of drawing pages, you may wish to restrict the area of the model to be displayed or drawn. You can restrict the area by giving a bounding rectangle in the world coordinate system or you can select a string to be used as the boundary or even use a combination of the two.

1. Select the Restrict Area button

2. If using a boundary string, select the Boundary String Name tab followed by the model containing the boundary string, and also indicate whether you require the information inside or outside the boundary.

3. If a rectangle is to be used to select the area of the model required, select the Boundary Rectangle tab and give the two points defining the rectangle.

4. When you finish, click OK.

Save a page layout

When a series of pages have been placed with the Plan Page Layout option, they must be saved before they can be used to produce drawing pages.

1. From the Plan page layout menu, select Save Layout.

2. A Save File menu is displayed. Give the required file name for the page layout.

3. Click OK to save the file.

Save a page setup

Once you have defined a complete page set-up for a series of drawings you may wish to store the complete set of information for subsequent reuse. This ensures consistency and can save time. Saved page set-ups relate to different drawing types (ie, plans, profiles and cross sections). Only those appropriate to the current type of drawing will be listed.

1. Select the Page Setup button from the Draw menu.

2. Make any alterations required to the page size, margin, grid and frame tabs

3. Select the Save Setup button. A standard Save File menu is displayed.

4. Type the name that you wish to give to the saved page set-up.

When you finish, click OK to save the set-up.

Adding text to a drawing

1. On the Enhance Toolbar click the Text button
   or
   Select Text from the Enhance Pages pulldown from the Draw pulldown

2. On the Text Tab, if you wish to enter text from the keyboard Select the Enter Text button, the Get Text from Keyboard dialog will be displayed and you may enter any number of lines of text with up to 70 characters per line.

3. When you have typed your text Select OK

4. If you wish to get text from a file, Select the Open button. An open dialog will be displayed.

5. Select the required file, note that it must contain ASCII characters and each line should contain up to 70 characters. Surplus characters will be ignored.

6. You may type an Enhance Element Name, if not the next available element name will be used.

7. On the Effects tab you may choose to add line work around the text.

8. On the Justification tab you may choose the horizontal and vertical justification of the text relative to the line defining the base of the first line of text.

9. On the Start and End tab, select or type a Start Point

10. Select or type an End Point either by defining a Bearing or an X,Y point, a line from the center to the X,Y point will define the start point where it intersects with the circle

11. The Preview button may be used to draw a rectangle on the display showing the extents of the text that will be drawn. This can aid positioning of the text.

When you finish, select Apply to carry out the option and retain the menu for further use or select OK to carry out the option and dismiss the menu.

Adding symbols to a drawing

1. On the Enhance Toolbar click the Symbol button
   or
   Select Symbol from the Enhance Pages pulldown from the Draw pulldown

2. Select the required symbol using the Open dialog.

3. Type a width for the symbol

4. Type a height for the symbol

5. Select or type a coordinate to position the symbol

6. Select or type a Bearing for the symbol.

7. You may type an Enhance Element Name, if not the next available element name will be used

When you finish, select Apply to carry out the option and retain the menu for further use or select OK to carry out the option and dismiss the menu.

Enhancing one page or all pages in a drawing

1. On the Enhance Toolbar click the Symbol button
   or
   Select Symbol from the Enhance Pages pulldown from the Draw pulldown

2. Select either the Current Page or All Pages

When you finish, select OK.

Earthworks How-To's

Create a custom earthwork style

To create an Earthwork style you must select the Earthwork Wizard from the Design pulldown menu.

1. Complete the Earthwork Model Details panel, click Next >

2. On the Assign Earthwork Styles and Strategy panel, click the '...' button beneath either Cut to the Left, Cut to the Right, Fill to the Left or Fill to the Right.

3. On the Earthwork Style Open panel, click Custom Earthworks

4. The Custom Earthwork Style panel is displayed with the schematic display area showing the style newerthw.sty

5. Edit the style, adding elements, ditches, rounded slopes or alternative slopes.

   Set the Intersection details, analysis type and associated drawing style, together with barrier string and repeat pattern definition.

6. Click Next >.

7. Save the Custom Earthwork style, using a unique name in a directory (library of styles) of your choice. Click OK.

8. The Assign Earthworks Styles and Strategy is displayed. The Earthwork style you created is displayed in the window above the button you clicked at step 2. If necessary click and drag the schematic to the other windows. You have successfully created and saved your own Custom Earthwork style. If you wish to create another new style begin again at Step 2.

- It is not possible to save and store a complete Earthwork strategy. The strategy must be constructed for each of the four areas on the Assign Earthwork Styles and Strategy panel.

Ignore intersections with the ground model

Certain Earthwork situations require mandatory elements regardless of whether the element intersects with the ground or not. For example if a ditch is always required, then one side of the ditch and the bottom of the ditch can be made to ignore intersections with the ground, the third element can always be made to intersect with the ground.

1. Select an element

2. Un-check the Intersect with ground check box

The preview schematic current element will change from a solid to a dashed line.

- The final element must intersect with the ground, therefore the Intersect with ground check box is disabled for this element. This is not true in the custom case.

Modify an element of an earthwork style

Change Height of element

1. Select the radio button next to Height

2. Type a value

or

Adjust the value using the spinner

Change Width of element

1. Select the radio button next to Width

2. Type a value

or

Adjust the value using the spinner

Change Slope of element

1. Type a value in the Slope 1 in box

or

Adjust the value in the Slope 1 in box by using the spinner

- When the slope is adjusted it will also adjust either the Height or Width depending on which radio button is set.

Select an element of an earthwork style to edit

1. Select the Element pull down and select the element from the list

or

Select the element from the preview schematic

The selected element will become highlighted in the preview schematic and the details of that element will be displayed.

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